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The New IEEE Standard Dictionary of Electrical and Electronics Terms

[Including Abstracts of All Current IEEE Standards]

Fifth Edition

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original form is possible. *Note:* Sometimes used when complete reconversion is not possible. *Contrast with:* **decode.** *See also:* **code.** 610.5-1990

encoded data. *See:* **code (D).** 610.5-1990

encode-decode table. *See:* **code-decode table.** 610.5-1990

encoder (1) (electronic computation). A network or system in which only one input is excited at a time and each input produces a combination of outputs. *Note:* Sometimes called matrix. 270-1966w
(2) (telecommunications). A device that performs encoding. 1007-1991
(3) (modeling and simulation). A device or system that encodes data. *Contrast with:* **decoder.** 610.5-1990

encoding. A means of producing a unique combination of bits (a code) in response to an analog input signal. 1007-1991

encoding law. An algorithm for encoding; i.e., "μ-law" or "A law." 1007-1991

end (Class 5) office (EO) (telephone loop performance). A switching system to which customer premises equipment is directly connected by loops. The switch connects loops to loops and loops to trunks. 820-1984w

end-around carry (1) (computing systems). A carry generated in the most significant place and forwarded directly to the least significant place, for example, when adding two negative numbers, using nines complement. *See:* **carry.** 162-1963
(2) (mathematics of computing). A carry process in which a carry digit generated in the most significant digit place is added directly to the least significant digit place. For example, when adding two negative numbers using nines complement. 610.1

end-around carry shift. *See:* **circular shift.** 610.1

end-around shift. *See:* **circular shift.** 610.1

end bell. *See:* **cable terminal.**

end bracket (rotating machinery). A beam or bracket attached to the frame of a machine and intended for supporting a bearing. [9]

end capacitor (antennas). A conducting element or group of conducting elements, connected at the end of a radiating element of an antenna, to modify the current distribution on the antenna, thus changing its input impedance. 145-1983

end cells (storage battery) (storage cell). Cells that may be cut in or cut out of the circuit for the purpose of adjusting the battery voltage. *See:* **battery (primary or secondary).** [119]

end closure. The degree of accuracy with which two separate lines, defined to end at the same point, actually meet. 610.6-1991

end device (of a telemeter) (power switchgear). The final system element that responds quantitatively to the measurand through the translating means and performs the final measurement operation. *Note:* An end device performs the final conversion of measurement energy to an indication, record, or the initiation of control. C37.100-1981

end distortion (data transmission). The shifting of the end of all marking pulses from their proper positions in relation to the beginning of the start pulse, of telegraph signals. 599-1985w

end finger (outside space-block) (rotating machinery). A radially extending finger piece at the end of a laminated core to transfer pressure from an end clamping plate or flange to a tooth. *See:* **rotor (rotating machinery); stator.** [9]

end-fire array antenna. A linear array antenna whose direction of maximum radiation lies along the line of the array. 145-1983

end fittings (composite insulators). The insulator attachment hardware that is connected to the core. 987-1985

ending point. *(A) (for CCS outgoing trunk).* Transmittal of IAM. *(B) (for per-trunk-signaling outgoing trunk).* Transmittal of connect signal to next office. *See:* **cross-office delay; starting point.** 973-1990

end injection (Charles or Kino gun (EI)) (microwave tubes). A gun used in the presence of crossed electric and magnetic fields to inject an electron beam into the end of a slow-wave structure. *See:* **microwave tube.** [45]

end-of-block signal (numerically controlled machines). A symbol or indicator that defines the end of one block of data. [74], [114]

end-of-copy signal (facsimile). A signal indicating termination of the transmission of a complete subject copy. *See:* **facsimile signal (picture signal).** 168-1956w

end-of-demand-interval indicator. An indicator for the end of the demand interval for nonrolling-interval demand, or the end of the sub-interval for rolling-interval demand. C12.15-1990

end-of-dialing determination. The use of code interpretation and digit counting on critical interdigital timing to determine if additional dialed digits are to be expected. The critical interdigital timing interval is a specified time interval. In these cases, dialing should be considered complete if a potentially complete code has been received and if no additional character is received within the critical interdigital timing interval. It is desirable to avoid the use of timing whenever possible since this delays call completion and is a potential source of misdirected calls. 973-1990

(2) (synchronous-machine regulating system). The value of a controlled variable (for example, generator terminal voltage) that results from a desired or agreed-upon relationship between it and the commands (commands such as voltage regulator setting, limits, and reactive compensators). [9]

idenitified (as applied to equipment) (National Electrical Code). Recognizable as suitable for the specific purpose, function use, environment, application, etc., where described in a particular Code requirement. *See:* **equipment.** (FPN) Suitability of equipment for a specific purpose, environment or application may be determined by a qualified testing laboratory, inspection agency, or other organization concerned with product evaluation. Such identification may include labeling or listing. *See:* **labeled; listed; Section 90-6 of the NEC.** [86] **(2) (data management).** *See:* **functional dependency.** 610.5-1990

identification (radar). The knowledge that a particular radar return signal is from a specific target. This knowledge may be obtained by determining size, shape, timing, position, maneuvers, rate of change of any of these parameters, or by means of coded responses through secondary radar. 686-1982

identification beacon (navigation aid terms). A beacon that transmits coded signals to identify a geographic position. 172-1983

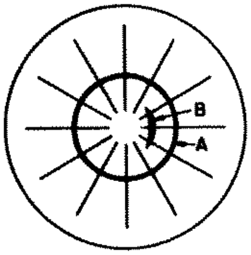
identifier (software). The name, address, label, or distinguishing index of an object in a computer program. 610.12-1990

identity friend or foe (IFF). Equipment used for transmitting radio signals between two stations located on ships, aircraft, or ground, for automatic identification. *Notes:* (1) The usual basic parts of equipment are interrogators, transpondors, and respondors. (2) Usually the initial letters of the name (IFF) are used instead of the full name. *See:* **radio transmission.** [119]

identity operation. A Boolean operation whose result is true if and only if the operands are all true or all false. *Note:* An identity operation on two operands is the same as an equivalence operation. 610.1

identity simulation. A simulation in which the roles of the participants are investigated or defined; for example, a simulation that identifies aircraft based on their physical profiles, speed, altitude, and acoustic characteristics. 610.3-1989

I-display* (radar). A display used in a conical-scan radar, in which a target appears as a complete circle when the radar antenna is pointed at it and in which the radius of the circle is proportional to target range. Incorrect aiming of the antenna changes the circle to a segment whose arc length is inversely proportional to the magnitude of the pointing error and the position of the segment indicates the direction in which the antenna should be moved to restore correct aiming. 686-1982
*Rare.



***I*-Display**

idle (IDL) (1) (local and metropolitan area networks). A signal condition where no transition occurs on the transmission line is used to define the end of a frame and ceases to exist after the next LO to HI transition on the AUI circuits. An IDL always begins with a HI signal level. A driver is required to send the IDL signal for at least 2 bit times and a receiver is required to detect IDL within 1.6 bit times. 8802-3:1990
(2) (local and metropolitan area networks). A signal condition where no transition occurs on the transmission line. It is used to define the time between packets. 802.3b,c,d,e-1989
(3) (software). Pertaining to a system or component that is operational and in service, but not in use. *See also:* **busy; down; up.** 610.12-1990

idle bar (rotating machinery). An open circuited conductor bar in the rotor of a squirrel-cage motor, used to give low starting current in a moderate torque motor. *See:* **rotor (rotating machinery).** [9]

idle channel code. *See:* **code, idle channel.** 1007-1991

idle channel noise. The short-term average noise level as measured according to IEEE Std 743-1984. The measurement for PTS may be made with flat or C-message weighting. The measurements are made at any analog or digital interface with the far end terminated in the appropriate code or impedance(s). 973-1990

idle character. A control character that is sent when there is no information to be sent. 610.5-1990

idle time. The period of time during which a system or component is operational and in service, but not in use. *Syn:* **standby time.** *See also:* **busy time; down time; set-up time; up time.** 610.12-1990

IDP. Acronym for **integrated data processing.** 610.2-1987 incoming supply leads inside a chamber that need not be fully enclosed and may be formed by the foundations beneath the machine. [9]

separating character. *See:* **information separator.** 610.5-1990

separation (1) (frequency modulation). The process of deriving individual channel signals (for example, for stereophonic systems) from a composite transmitted signal. *Note:* Separation describes the ability of a receiver to produce left and right stereophonic channel signals at its output terminals and is a measured parameter for stereo receivers only. Left-channel signal separation is defined as the ratio in decibels of the output voltage of the left output of the receiver to that of the right output when an "L"-only signal is received. Right-channel separation is similarly defined. 185-1975w
(2) (separation and identification) (design and installation of cable systems for Class 1E circuits in nuclear power generating stations). Physical independence of redundant circuits, components, and equipment. (Physical independence may be achieved by space, barriers, shields, etc.) 690-1984

separation criteria (electromagnetic compatibility). Curves that relate the frequency displacement to the minimum distance between a receiver and an undesired transmitter to insure that the signal-to-interference ratio does not fall below a specified value. *See:* **electromagnetic compatibility.** [53]

separation distance (Class 1E equipment and circuits). Space which has no interposing structures, equipment, or materials that could aid in the propagation of fire or that could otherwise disable Class 1E systems or equipment. 384-1981

separation sort. *See:* **distribution sort.** 610.5-1990

separator (1) (storage cell). A spacer employed to prevent metallic contact between plates of opposite polarity within the cell. (Perforated sheets are usually called retainers.) *See:* **battery (primary or secondary).** [119]
(2). *See:* **delimiter.**

separator, insulation slot (rotating machinery). Insulation member placed in a slot between individual coils, such as between main and auxiliary windings. *See:* **rotor (rotating machinery); stator.** [90]

septenary. (A) Pertaining to a selection in which there are seven possible outcomes. (B) Pertaining to the numeration system with a radix of 7. 610.1

septendecimal. (A) Pertaining to a selection in which there are 17 possible outcomes. (B) Pertaining to the numeration system with a radix of 17. 610.1

septet. A group of seven adjacent digits operated upon as a unit. *Syn:* **seven-bit byte.** 610.1, 610.5-1990

sequence. (A) To place items in a linear arrangement in accordance with the order of the natural numbers. *Note:* Methods or procedures may be specified for other natural linear orders by mapping onto the natural numbers. For example, the sequence may be alphabetic or chronological. *See also:* **collating sequence (B); sort (A).** (B) The order (B) in which items are arranged. *See also:* **collating sequence (A); random number sequence; recursively defined sequence.** (C) A set of items that have been sequenced. (D) * *See:* **order (A).** (E) *See:* **collating sequence (B).** 610.5-1990
(2) (STEbus). An indivisible bus transaction comprising one or more transfers. 1000-1987
(3). *See:* **calling sequence; collating sequence; pseudorandom number sequence.**
* Deprecated.

sequence by merging. *See:* **sort by merging.** 610.5-1990

sequence check. A check that verifies that a set of items are in a certain sequence. 610.5-1990

sequence field. *See:* **key.** 610.5-1990

sequence filter. *See:* **sequence network.**

sequence network (power switchgear). An electrical circuit that produces an output proportional to one or more of the sequence components of a polyphase system of voltages or currents; for example, positive-sequence network, or zero-sequence network. C37.100-1981

sequence number. A number identifying the relative location of blocks or groups of blocks on a tape. [61]

sequence-number readout. Display of the sequence number punched on the tape. *See:* **block-count readout.** [61]

sequence of events function. *See:* **supervisory control functions.**

sequence of operation (packaging machinery). A written detailed description of the order in which electrical devices and other parts of the industrial equipment should function. 333-1980w

sequencer. A mechanical device or computer program that sequences the items in a set. *See also:* **sorter.** 610.5-1990

sequence switch. A remotely controlled power-operated switching device used as a secondary master controller. *See:* **multiple-unit control.** [119]

sequence table (electric controller). A table indicating the sequence of operation of contactors, switches, or other control apparatus for each step of the periodic duty. *See:* **multiple-unit control.** 16-1955w

sequencing key. *See:* **sort key**. 610.5-1990

sequential (1) (formatted system) (telecommunication). If the signal elements are transmitted successively in time over a channel, the transmission is said to be sequential. If the signal elements are transmitted at the same time over a multiwire circuit, the transmission is said to be coincident. *See:* **bit.** [49]
(2) (software). Pertaining to the occurrence of two or more events or activities in such a manner that one must finish before the next begins. *Syn:* **serial (B).** *See also:* **consecutive.** 610.12-1990

sequential access (1) (test, measurement, and diagnostic equipment). A system in which the information becomes available in a one after the other sequence only, whether all of it is desired or not. [2]
(2) (data management). Pertaining to the process of storing and retrieving data using the sequential access mode. *Syn:* **physical sequential access; serial access.** *Contrast with:* **direct access; random access.** *See also:* **indexed access; indexed sequential access.** 610.5-1990

sequential access method (SAM). A technique for accessing data using sequential access mode. That is, to process a given data record, all data records previous to it must be accessed. *See also:* **basic sequential access method; queued sequential access method.** 610.5-1990

sequential access mode. An access mode in which data records are stored and retrieved in such a way that each successive access defines the next record to be retrieved. *Contrast with:* **direct access mode; indexed sequential access mode.** 610.5-1990

sequential cohesion. A type of cohesion in which the output of one task performed by a software module serves as input to another task performed by the module. *Contrast with:* **coincidental cohesion; communicational cohesion; functional cohesion; logical cohesion; procedural cohesion; temporal cohesion.** 610.12-1990

sequential commutation (circuit properties) (self-commutated converters). Commutation occurs from one to the next of three or more principal switching branches arranged as a multipulse group that conduct in cyclic sequential order for usually (but not always) equal time intervals. The commutation may be direct or indirect. 936-1987

sequential construct. *See:* **serial construct.** 610.12-1990

sequential control (computing systems). A mode of computer operation in which instructions are executed consecutively unless specified otherwise by a jump. [2], [20], [85]

sequential data set (SDS). *See:* **sequential file.** 610.5-1990

sequential events recording system (SERS). A system that monitors bistable equipment operations and process status and records changes of state in the order of detected occurrences. This monitoring may be accomplished using a device dedicated solely to this function, or using a multifunction system such as a data acquisition computer system. [1], [5]

sequential file. A file that must be accessed using sequential access; for example, a data file on a magnetic tape. *Syn:* **serial file; sequential data set.** *Contrast with:* **direct data set; indexed file; partitioned data set.** 610.5-1990

sequential lobing. *See:* **lobe switching.**

sequential logic function (graphic symbols for logic functions). A logic function in which there exists at least one combination of input states for which there is more than one possible resulting combination of states at the outputs. *Note:* The outputs are functions of variables in addition to the present states of the inputs, such as time, previous internal states of the element, etc. 91-1984

sequential memory (sequential events recording systems). The memory that stores events in the same order in which they were received by the system. The memory capacity can be expressed as the number of events or levels. *See:* **event; level.** [1], [5]

sequential operation. Pertaining to the performance of operations one after the other. [20], [85]

sequential precedential database. *See:* **hierarchical database.** 610.5-1990

sequential processes (software). Processes that execute in such a manner that one must finish before the next begins. *See:* **concurrent processes; process.** 729-1983

sequential programming (test, measurement, and diagnostic equipment). The programming of a device by which only one arithmetical or logical operation can be executed at one time. [2]

sequential relay. A relay that controls two or more sets of contacts in a predetermined sequence. *See:* **relay.** [87]

sequential scanning (television). A rectilinear scanning process in which the distance from center to center of successively scanned lines is equal to the nominal line width. *See:* **television.** [119]

sequential search. A search in which the items in a set are examined in order, starting from the first item in the set, until the search is successful or the end of the set is encountered. *Syn:* **linear search.** 610.5-1990